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AMENDMENTS TO THE CLAIMS

Claim 1 (currently amended): A method for making a thin film device, said method comprising ~~the steps of~~:

~~(a)~~ implanting hydrogen ions to a selected depth within a single crystal semiconducting material substrate ~~that can~~ withstanding temperatures of 500°C - 1000°C, having implant-damaged stiffening material on the single crystal substrate to form an implanted hydrogen ion layer so as to divide the single crystal semiconducting material substrate into two distinct portions;

~~(b)~~ thermally bonding the single crystal semiconducting material substrate with the implant-damaged stiffening material ~~surface~~ to a flexible substrate that has a flexibility in excess of that of silicon, said thermally bonding temperature used for bonding has a maximum temperature of approximately 150°C - 200°C ~~wherein the temperature used for bonding has a maximum temperature of approximately 150°C - 200°C~~ ; ~~and~~

~~(c)~~ splitting the single crystal semiconduct~~or~~ing material substrate along the implanted hydrogen ion layer; and

~~(d)~~ removing one of the two distinct portions of the single crystal semiconducting material substrate ~~the portion of the growth substrate , which is~~ on the side of the ion layer away from the flexible substrate, wherein a remaining thin film portion is attached to the flexible substrate.

Claim 2 (currently amended): ~~A~~ The method according to claim 1, wherein said bonding the single crystal semiconduct~~or~~ing material substrate further comprises a material selected from a group consisting of silicon, germanium, InP, and GaAs.

Claim 3 (currently amended): ~~A~~ The method according to claim 1, wherein said thermally bonding the single crystal semiconducting material substrate includes the flexible substrate

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compris~~es~~ing a material selected from a group consisting of stainless steel foil, plastic, polyimide, polyester, and mylar and the stiffening material comprises a material selected from the group consisting of silicon dioxide, silicon nitride, silicon, SiC, diamond, spin on glass, metal, polymer, glass frit, and solder .

Claim 4 (currently amended): ~~A~~ The method according to claim 1, further comprising ~~the step of~~ depositing a stiffening material layer on the surface of the single crystal substrate devoid of the stiffening material before said implanting ~~step~~ .

Claim 5 (currently amended): ~~A~~ The method according to claim 4, wherein said splitting ~~further~~ compris~~inges~~ ~~the step of:~~ directing a high pressure nitrogen gas stream or liquid stream towards the side of the single crystal semiconducting material substrate into which a high dose hydrogen ion implantation has been made to split the single crystal semiconducting material substrate.

Claim 6 (currently amended): ~~A~~ The method according to claim 1, further comprising ~~the step of:~~ implanting boron at the same selected depth as the implanted hydrogen for lowering the thermal energy required to split ~~the growth substrate~~ the one of the two distinct portions of the single crystal semiconducting material substrate.

Claim 7 (currently amended): ~~A~~ The method according to claim 1, further comprising ~~the step of:~~ providing an adhesive layer between ~~the~~ bonding surfaces of the ~~thin film functional layer~~ single crystal semiconducting material substrate and the flexible substrate before or during ~~step (b)~~ said thermally bonding ~~for improving the bonding thereof~~.

Claim 8 (currently amended): The method according to claim 1, wherein the single crystal semiconductor substrate contains an etch stop ~~layers~~ layer, and wherein ~~the~~ a peak of the hydrogen ion implant resides at a depth beyond the etch stop layer.

Claim 9 (canceled)

Claim 10 (currently amended): A method for making a thin film device, said method comprising ~~the steps of~~:

~~(a)~~ depositing at least one protective layer on one surface of a ~~large diameter~~ growth substrate;

~~(b)~~ growing a ~~film layer of~~ thin film functional ~~material~~ layer on the at least one protective layer, ~~said~~ the thin film functional layer ~~material~~ comprising a material selected from the group consisting of high temperature superconducting (YBCO), ferroelectric, piezoelectric, pyroelectric, high dielectric constant, electro-optic, photoreactive, waveguide, non-linear optical, superconducting, photodetecting, solar cell, wideband gap, shaped memory alloy, and electrically conducting materials;

~~(c)~~ implanting hydrogen to a selected depth within ~~the growth substrate~~ the thin film functional layer or within the at least one protective layer to form a hydrogen ion layer so as to divide the material having ~~the growth substrate~~ a hydrogen implanted thin film functional layer and the at least one protective layer into two distinct portions;

~~(d)~~ bonding the ~~growth substrate~~ hydrogen implanted thin film functional layer including the at least one protective layer and the thin film layer to a ~~second~~ flexible substrate, that has a flexibility in excess of silicon; and

~~(e)~~ splitting the material having the ~~growth substrate~~ hydrogen implanted thin film functional layer and the at least one protective layer along the implanted ion layer and removing the portion of the material which is on the side of the ion layer away from the flexible substrate.

Claim 11 (currently amended): A method according to claim 10, wherein the ~~growth substrate is comprised of a material selected from a group consisting of~~ hydrogen implanted thin film functional layer comprises at least one of silicon, GaAs, quartz, and sapphire.

Claim 12 (currently amended): A method according to claim 10, wherein ~~the growth substrate~~ said growing the thin film functional layer comprisinges growing a layer of silicon.

Claim 13 (currently amended): A method according to claim 10, further comprising ~~the step of:~~ depositing a stiffening material layer on the surface of the single crystal substrate.

Claim 14 (currently amended): A method according to claim 10, ~~further comprising the step of:~~ said splitting comprises directing a high pressure nitrogen gas stream or liquid stream towards the side of the ~~single crystal substrate~~ hydrogen implanted thin film functional layer ~~into which a high dose hydrogen ion implantation has been made to split the single crystal substrate~~.

Claim 15 (currently amended): A method according to claim 10, ~~wherein the growth substrate comprising silicon, wherein the at least one protective layer comprising an oxide layer~~ , ~~an adhesion layer, and a barrier layer; and wherein~~ the method further comprising ~~the steps of~~;

depositing ~~the~~ an oxide layer on the silicon substrate, wherein the at least one protective layer comprising the oxide layer, an adhesion layer, and a barrier layer;

depositing the adhesion layer on the oxide layer; and

depositing the barrier layer on the adhesion layer ~~for isolating the thin film layer~~.

Claim 16 (currently amended): A method according to claim 15, wherein said depositing the adhesion layer, wherein the adhesion layer comprises ~~the adhesion layer is comprised of~~ titanium, and wherein the barrier layer comprises ~~a material selected from a group consisting~~ at least one of platinum and iridium.

Claim 17 (currently amended): A method according to claim 10, depositing the oxide layer, wherein the at least one protective layer comprising MgO.

Claim 18 (currently amended): A method according to claim 10, wherein growing the thin film functional ~~material~~ layer ~~is comprised of a material selected from a group consisting of~~ comprises at least one of a single crystal material, a polycrystalline material, and a high temperature sinter ceramic material.

Claim 19 (currently amended): A method according to claim 10, wherein bonding the thin film functional layer includes the flexible substrate further compris~~es~~ing a material selected from a group consisting of stainless steel foil, plastic, polyinide, polyester, and mylar.

Claim 20 (currently amended): A method according to claim 10, further comprising ~~the step of~~:

annealing the thin film functional ~~material~~ layer for strengthening and tempering the thin film layer.

Claim 21 (currently amended): A method according to claim 10, said splitting further comprising ~~the step of:~~ implanting boron at the same selected depth as the implanted hydrogen ~~for lowering the thermal energy required to split the growth substrate~~.

Claim 22 (currently amended): A method according to claim 10, further comprising ~~the step of:~~ providing an adhesive layer between the bonding surfaces of the thin film functional layer and the flexible substrate before or during ~~step (d) for improving the bonding thereof~~ said bonding.

Claim 23 (currently amended): A method for making a thin film device, said method comprising ~~the steps of~~: ~~(a)~~ growing a film layer of thin film functional material on the surface of a growth

substrate, said functional material comprising a material selected from the group consisting of high temperature superconducting (YBCO), ferroelectric, piezoelectric, pyroelectric, high dielectric constant, electro-optic, photoreactive, waveguide, non-linear optical, superconducting, photodetecting, solar cell, wideband gap, shaped memory alloy, and electrically conducting materials;

~~(b)~~ implanting hydrogen to a selected depth within the growth substrate to form a hydrogen ion layer so as to divide the growth substrate into distinct portions;

~~(c)~~ bonding the growth substrate and associated material having the thin film layer to a second flexible substrate <u>that has a flexibility in excess of that of silicon</u>;

~~(d)~~ splitting the material having the growth substrate and thin film material along the ~~implanted~~ <u>hydrogen</u> ion layer and removing the portion of the material which is on the side of the ion layer away from the flexible substrate.

Claim 24 (currently amended): A method according to claim 23, further comprising ~~the step of:~~ depositing a stiffening material layer on the surface of the ~~single-crystal~~ <u>growth</u> substrate.

Claim 25 (currently amended): A method according to claim 23, further comprising ~~the steps of:~~ directing a high pressure nitrogen gas steam or liquid stream towards the side of the ~~single-crystal~~ <u>growth</u> substrate into which a high dose hydrogen ion implantation has been made to split the ~~single crystal~~ <u>growth</u> substrate.